Kansas Behavioral Health Risk Bulletin

Kansas Department of Health and Environment

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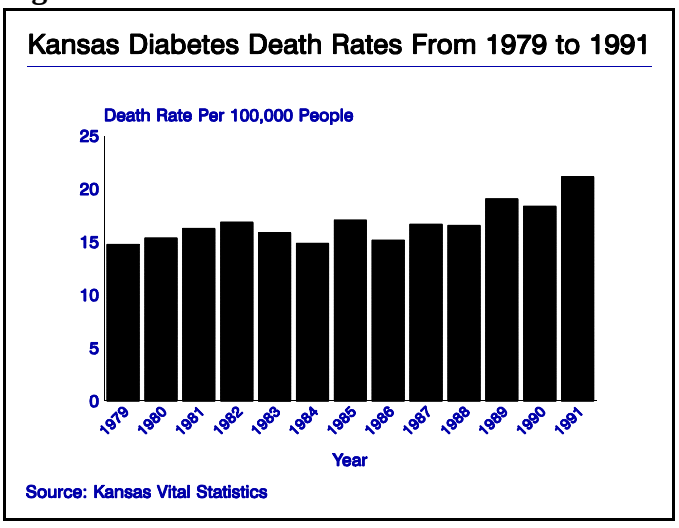
Diabetes Mellitus in Kansas

Diabetes mellitus (DM) is a chronic disease in which the body is incapable of adequately producing and/or using insulin, which is necessary to convert glucose (sugar) into energy. More than 126,000 Kansans are estimated to have diabetes[1] and it is the seventh leading cause of death in Kansas resulting in over 500 deaths annually[2] and contributing to another 1000 deaths; yet, only half of all Kansans who have diabetes are aware of their condition[1]. Persons with diabetes are 25 times more likely to become blind, 15 times more likely to have a lower extremity amputated, 17 times more likely to develop kidney disease, and twice as likely to develop cardiovascular disease[3]. In addition, diabetes costs the Kansas economy $890 million each year due to medical care and lost productivity.

Figure 1



Diabetes is diagnosed by identifying abnormally high levels of blood glucose, which occurs when either insulin action or production is impaired. Diabetes has two major forms: insulin-dependent diabetes mellitus (IDDM) or type I diabetes, and non-insulin-dependent diabetes mellitus (NIDDM) or type II diabetes.

Insulin-dependent diabetes mellitus (IDDM) is usually diagnosed before the age of thirty. A person with IDDM is able to produce little or no insulin. This absence of insulin prevents glucose (sugar) from entering cells, were it can be burned to produce energy, resulting in an excess of glucose in the blood (hyperglycemia). When no insulin is available, body fat is used to fuel the body, which causes an accumulation of a by-product called ketones. Increased blood ketones cause a serious condition called ketoacidosis (a chemical imbalance in which high acid concentrations are present in the blood and body tissues)[4]. The treatment of ketoacidosis requires hospitalization. If untreated, ketoacidosis can lead to coma and death. The treatment of IDDM requires daily insulin injections or use of a insulin pump, in conjunction with a planned diet, regular exercise, and daily monitoring of blood glucose. Diabetes pills are not effective in the treatment of IDDM.

Non-insulin-dependent diabetes mellitus (NIDDM) is usually diagnosed after the age of thirty; 80 to 85 percent of persons with diabetes have NIDDM and approximately 88% of persons with NIDDM are overweight[4]. Among persons with NIDDM there is often enough insulin, or even an excess of insulin; however, their bodies are unable to properly use insulin. Non-insulin dependent diabetes mellitus is characterized by weight gain and obesity due to the increase in appetite and fat storage caused by the resistance to insulin. Obesity contributes to insulin resistance and may account for 1/2 of all NIDDM. The treatment of NIDMM requires daily blood glucose monitoring, exercise, and diet. In some cases, diabetes pills or insulin injections are required.

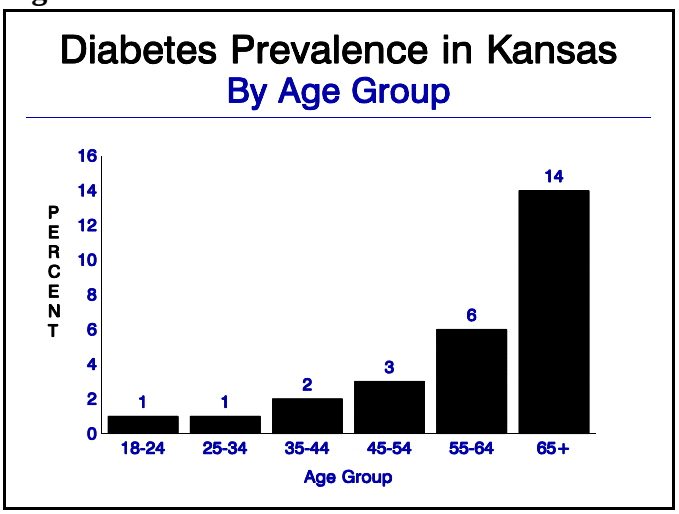
Common symptoms of diabetes mellitus include constant hunger, frequent urination, weight loss, and excessive thirst. Other symptoms of diabetes mellitus may be blurred vision, itching, and the slow healing of sores or cuts, especially on the feet.

In 1993, the Kansas Department of Health and Environment, Bureau of Chronic Disease and Health Promotion, conducted the Behavioral Risk Factor Surveillance System (BRFSS) survey to assess the prevalence of health behaviors among adult Kansans (aged 18 and older) through a random digit-dialed telephone interview. Respondents were asked "Have you ever been told by a doctor that you have diabetes?" Those who answered yes are considered to have diabetes, except for women who were only told they had diabetes during pregnancy.

This bulletin examines diabetes among Kansans, interventions to help prevent and control diabetes, and the Healthy Kansans 2000 objectives relating to diabetes.

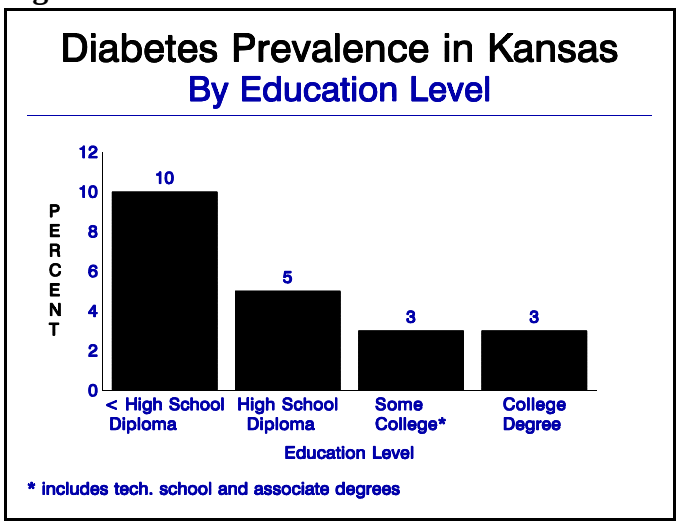
Race: According to the 1993 BRFSS survey, 4.4% of adult Kansans have diabetes. Native American, African-American, and Hispanic Kansans are at increased risk of developing diabetes.

Figure 2



Age Group and Gender (Fig. 2): The prevalence of diabetes by gender is similar with 4.6% of men and 4.3% of women reporting that they have diabetes. Among female Kansans, women who have had gestational diabetes or a baby weighing at least 9 pounds at birth are at increased risk of developing diabetes later in life. The prevalence of diabetes increases with advancing age. Only 1% of Kansans aged 18 to 34 report having diabetes, but the prevalence of diabetes climbs to 14% among Kansans aged 65 and older.

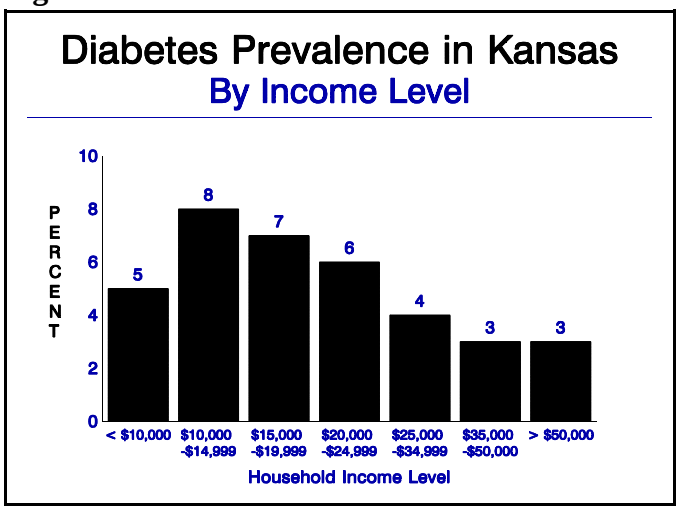
Figure 3



Education (Fig. 3): The prevalence of diabetes decreases with higher levels of educational attainment. The prevalence of diabetes is highest among Kansans with less than a high school diploma (10%) and lowest among Kansans with some college or college degrees (3%).

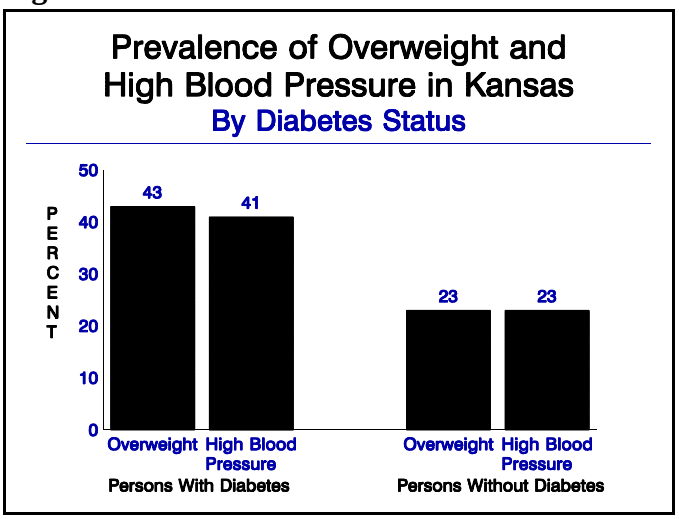
Income (Fig. 4): Kansans with household incomes of less than $25,000 have a greater prevalence of diabetes (6%) than Kansans with household incomes of $25,000 or greater (3%).

Figure 4



Overweight[A] (Fig. 5): Kansans who have diabetes have a higher prevalence of being overweight (43%) than Kansans who do not have diabetes (23%).

Figure 5



High Blood Pressure (Fig. 5): Kansans with diabetes have a higher proportion of persons with high blood pressure (41%) than Kansans who do not have diabetes (23%).

Physical Activity: Kansans with diabetes are more likely to not participate in any form of leisure time physical activity (50%) than Kansans who do not have diabetes (37%).

Conclusions: According to the information obtained from the 1993 BRFSS survey the following groups are at increased risk of developing diabetes:

* African-American, Hispanic, and Native American Kansans
* Kansans aged 65 and older
* Kansans with less than a high school diploma
* Kansans with household incomes below $25,000

Recommendations: The following recommendations are offered to help prevent and control diabetes and the complications caused by diabetes:

1. Weight loss for persons who are overweight.
2. Exercise regularly, at least 3 times a week for 20 minutes each time.
3. Consume 30% or less of calories from fat and less than 10% of daily caloric intake should be from saturated fats, and dietary cholesterol should be limited to 300mg or less daily.
4. Focus educational efforts towards populations (Native Americans, African-Americans, Hispanics, women with babies over 9 lbs or who had gestational diabetes) at known increased risk for diabetes and diabetic complications.
5. Preventive screenings (i.e. foot exams, dilated retinal eye exams, blood pressure) to prevent diabetic complications.
6. Pregnant women should be screened for gestational diabetes between the 24th to 28th week of pregnancy.
7. Improve the understanding and self-care of diabetes among Kansans with diabetes.
8. Improve diabetes care aimed at preventing complications that is offered by health care providers.

Healthy Kansans 2000 Objectives (Table 1): There are no direct Healthy Kansans 2000 objectives for diabetes, however, diabetes-related objectives are:

1 To decrease to 20% the proportion of Kansans who are overweight.
2. To increase to 40% the proportion of Kansans aged 18 and older who regularly engage in light to heavy physical activity.
3. To decrease to 15% the proportion of Kansans aged 18 and older who engage in no leisure time physical activity.
4. Increase to 40% the proportion of persons whose dietary fat intake constitutes less than 30% of their caloric intake.

A Based on body mass index (BMI). BMI is calculated by taking a person's weight in kilograms and dividing it by their height in meters squared (kg/m^2). Males with a BMI equal to or greater than 27.8 and females with a BMI equal to or greater than 27.3 are considered overweight.

References:

1 Public Health Service. *Diabetes in the United States: A Strategy for Prevention*. Washington, DC: US Dept of Health & Human Services; 1994.
2 KDHE, Vital Statistics
3 *Perspectives in Health Promotion and Aging*. National Eldercare Institute on Health Promotion, AARP; 1992. Vol. 7 No. 2.
4 Guthrie DW, Guthrie RA. *The Diabetes Sourcebook*. Los Angeles, CA: Lowell House, 1992.

Table 1: Diabetes-Related Objectives

	Kansas Baseline	Healthy Kansans 2000 Objectives
Proportion of Kansans Who Are Overweight	26% (1992)	20%
% of Kansans Exercising Regularly	22% (1992)	40%
% of Kansans Who Engage in No Physical Activity	29% (1992)	15%
% of Kansans Eating < 30% of Calories as Fat	30% (1993)	40%

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